

ABSTRACT OF THE INVENTION

Disclosed is a method of modifying cell structure which includes:
increasing the intracellular concentration of biliverdin reductase, or a fragment or
5 variant thereof, in a mammalian cell under conditions effective to modify the structure
of the mammalian cell. Also disclosed are methods of performing *in vivo* tissue
remodeling in a mammal and repairing a damaged organ or organ system, both of
which include delivering biliverdin reductase, or fragments or variants thereof, to one
or more cells present at a site of tissue remodeling in a mammal, wherein said
10 delivering increases the intracellular concentration of biliverdin reductase, or
fragments or variants thereof, under conditions effective to modify the structure of the
one or more cells at the site of tissue remodeling, thereby remodeling the tissue
containing the one or more cells.